25X1

CLASSIFICATION S-E-C-R-E-T [redacted]

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT [redacted]

CD NO. 25X1

COUNTRY	USSR (Kalinin Oblast)	DATE DISTR.	22 June 1955
SUBJECT	The Chemistry Department and the Construction of Twin Pulse-Jet Fighter at Experimental Plant No. 1 in Podberezye	NO. OF PAGES	18
PLACE ACQUIRED	[redacted]	NO. OF ENCLS. (LISTED BELOW)	
DATE OF INFO.	[redacted]	SUPPLEMENT TO REPORT NO.	

25X1

[redacted]

THIS IS UNEVALUATED INFORMATION

25X1

[redacted]

Attached is [redacted] forwarded as received. 25X1

[redacted] Comments

25X1

1. The name of Hubert/Emrich has heretofore been received as Hubert Emmerich.

2. Section 6 h appears to have been garbled in translation.

25X1

3. The following corrections should be noted:

   a. In paragraph 2, read Ministry of Aviation Industry instead of Ministry of Aviation, and Ministry of Chemical Industry instead of Ministry of Chemistry. The same changes should be made in subsequent paragraphs.

   b. In paragraph 9, read Lukhovitsy airfield instead of Lukovice.

   c. Paragraph 10: there has never been an Air Force Ministry in the USSR. In 1950 there was the Ministry of the Armed Forces.

25X1

[redacted]

S-E-C-R-E-T

[redacted]

25X1

25X1

CLAS[redacted]

STATE	x	NAVY	x	NSRB	DISTRIBUTION	
ARMY	x	AIR	#x	FBI	OSI ev	x

[redacted]

CLASSIFICATION CONFIDENTIAL

COUNTRY USSR REPORT

TOPIC The Chemistry Department and the Construction of Twin Pulsejet Fighter at Experimental Plant No 1 in Podberezye 25X1

25X1

EVALUATION PLACE OBTAINED 25X1

DATE OF CONTE

DATE OBTAINED REPARED 12 January 1955

REFERENCES 25X1

PAGES 11 ENCLOSURES (NO. & TYPE) 3 - sketch on ditto,
list on ditto,
chart on ditto

REMARKS 25X1

This is UNEVALUATED Information

The Chemical Department of Experimental Plant No 1 25X1

1. After the war, OKB II resumed operation under the control of Soviet Colonel Vlassov (fnu) with Ing Roessing (fnu) as chief designer. The Soviets requested that a chemistry department for experiments with rocket fuels be attached. Hubert Emrich was delegated to establish the department. He merely pretended to be an expert in the field of rocket fuels by showing to the Soviets original documents of the BMW Plant bearing his signature as a department chief. Subsequently it was learned that Emrich had signed these documents after the fact instead of the actual department chief, Borovski (fnu) (phonetic spelling). In order not to be exposed as a swindler, Emrich consequently planned not to hire any fuel specialists for the department. Before the German experts were deported from Halle to the USSR, they did no practical work but tried to familiarize themselves with this new field. Actual research work was started after their deportation to the USSR. Primarily the Halle Labor Office had been in charge of hiring personnel for the Chemical Group. [1]

2. In Halle, Emrich and Roessings were assigned to Colonel Vlassov. But Roessing prepared the workorders for the Chemical Department. This arrangement was suggested by Emrich who feared exposure if he were subordinated to Roessing directly. ~~Colonel Vlassov~~ When Colonel Vlassov returned to the USSR, he said he preferred work at the Ministry of Aviation to a director's position at an aircraft plant. He explained to some German experts that the first director of a new plant had a dangerous position, because the circumstances would make it impossible to fulfill the production quota and he would soon be transferred, possibly to a convict camp, and be charged with sabotage. The second director would not be much better off, and only the fourth of fifth director would be comparatively safe, because, by then, the difficultiesxxwould have been eliminated. After his arrival in Podberezye, Emrich wanted to be assigned with his department to the Ministry of Chemistry,

CLASSIFICATION CONFIDENTIAL 25X1

This department, however, decided that the department had been established on request of the Ministry of Aviation which, therefore, would also be responsible of it. During their time at Podberezye, the chemical group was controlled by OKB II.

3. No work pattern or program was used for the activities of the Department of Chemistry. The slow work procedure of OKB II and the lack of the required laboratory equipment made it necessary for the individual work orders to be decided upon according to the circumstances. The entire laboratory equipment, even laboratory tables and improvised test stands, had to be produced partly of make-shift material. Assistance from the Ministry of Chemistry was not obtained. Most of the personnel had still to familiarize themselves with the field of rocket fuels, and to prepare the basic records which were lacking. Due to these handicaps, no result were probably obtained to exceed those obtained by related German expert groups during the war. The activities included the following:

   Advisory work in the field of materials for both OKB I and II

   Work on the DFS-346 rocket aircraft

   Development work in the field of rocket fuels

   Miscellaneous activities

4. Advisory work in the field of material problems included the analyses of materials used by both OKBs and the change-over from German materials to Soviet products. The analyses of steel, light metal, oil, gasoline, lubricants and varnishes followed the instructions and specifications given by Soviet manuals for aviation materials. These specifications were so detailed and foolproof that even inadequate personnel was able to make correct analyses. No details were available or the material analysed.

5. Work for the DFS-346 included 10 projects:

   a. Project for the establishment of a research institute for rocket fuels to include a laboratory, a technical institute and storage facilities. The laboratory building was to house sections for inorganic analyses, for organic preparations. electrical chemistry, physics and physical chemistry and for spectral analyses. A test stand fitted with a small combustion chamber, and equipment for the measurement of ignition delays was also planned. The project also included a small rubber laboratory and equipment for experiments with powder charges. The main technical institute was to be provided for the production of organic substances in quantities up to 200 kg. Among other equipment, a distillation column, 10 meters high, was to be installed. Storage facilities were to be constructed for "Salbei" (code for an oxidizing agent consisting of concentrated nitric acid) "T-Stoff" and similar agents. The project covered details such as laboratory tables, funnels, etc. and was primarily designed to suit the members of the Department of Chemistry. The plan, however, was never carried out and improvised equipment was installed in the available buildings.

b. Production specifications for rubber mixtures on a Lupolen and Oppanol basis (Lupolen - code for a type of sealing material used on fuel lines) Oppanol - a synthetic material equivalent to Vestanex, composed of isobutylene and isoprene), to resist T-Stoff and Salbei, and specifications for single parts, such as socket hoses and swivel hoses for fuel, especially for T-Stoff. These specifications were prepared for the production of vulcanized Buna S blends (synthetic rubber) with Lupolen admixtures and especially for the production of Oppanol and Lupolen. Lupolen -Oppanol mixture at a ratio of 50 to 50 and 30 to 70 was to be used as packing agent. A 15 to 85 mixture was recommended for the production of hoses. PeCe fabric (a type of highly acid resistant nylon- like fabric of low melting point produced by I.G. Farben) with a coating of Oppanol sulution was used as material for the hoses. The inner and outer coil of the fuel hoses were to be made of pure aluminum or V2A type steel. The fuel lines to tap the tanks (swivel hoses), however, were to be made only of one layer of Pe Ce fabric coated with Oppanol solution. In 1948 and 1949, Soviet firms produced seals and hoses according to these specifications. These products proved to be sufficiently resistant against T-Stoff and C-Stoff, as well as against Salbei. After 1949, the Soviet material was equal in quality to the captured German material.

c. Stabilization of C-Stoff. C-Stoff containing about 50 percent of hydracine hydrate, 37 percent methanol and 3 percent of a 10 percent aqueous solution of potassium copper cyanuer, dissociated when stored. Since none of the chemists was experienced with C-stoff, the type of dissociation had first to be analyzed in order to find a preventive agent. It was found that the dissociation was a result of an oxydizing process of the hydrazine hydrate which in turn was effected by oxygen and catalytically forced by the content of calium copper cyanuer because the latter addition did not contain the theoretically required amount of cyanogen. The defect was eliminated by sealing the C-Stoff against air by covering it with a layer of transformer oil and by adding 0.05 to 0.1 percent of hydroquinone which sufficiently eliminated the catalytical oxydation without increasing the ignition delay. The maximum ignition delay for C-Stoff and T-Stoff mixtures was 25 milli seconds. In addition to the above mentioned mixtures, others containing more methanol or water were used to reduce the temperatures in the combustion chamber.

d. Experiments with a static measuring instrument for ignition delays. In cooperation with Dr. Wehde's department, the Chemical Group developed a measuring instrument for ignition delays to test rocket fuels. One component was dripped into the other and the time passed between the impingement of the drop and the inflammation was measured in milli seconds. One agent, for example C-Stoff, was filled in a small crucible with a capacity of about 2 cm^3 made of V2A steel or porcelain, and small drops of T-Stoff were added by means of a small pipette. The impingement on the liquid surface produced an impulse which caused a condenser to discharge. As soon as the reaction of both components occured, the flame produced stopped the discharge by means of a photoelectric cell. The remaining tension of the condenser indicated the delay in milli seconds on a calibrated scale.

e. Development of a cabin heater operating without exhaust gases.
The designers believed that, because of the low temperatures at the high altitudes reached by the DFS-346, the cabin should be heated. It was planned that the heat be produced by burning pressed tablets of an aluminum-magnesium powder in an oxygen flow. The stove, an iron tube, about 60 cm long and 10 cm in diameter, was fitted with ribs and with an iron rod. The latter extended over the length of the tube and was to hold the tablets which were provided with a hole for this purpose. Aluminum and magnesium powder at a mixture ratio of 2 to 1 was mixed with diluted water glass. This paste was pressed into tablets and burned in a kiln at a temperature of approximately 100° centigrade. Ignition was effected by the first tablet on the rod which was made of a thermite substance with a cast-in ignition coil which, being fed from the aircraft battery, started to glow and ignited the thermite. By feeding oxygen into the tube, the other tablets started to burn. The heat was controlled by the oxygen flow. A blast unit was to blow cold air to the stove. Heated air would flow back to the cabin at a temperature of 60 dentigrades. The burning period of the stove was one hour. After small technical difficulties were eliminated the stove operated satisfactorily, but it was never installed in the DFS-346, since friction of the air occuring at high speeds actually produced enough heat for the cabin.

f. Experiments for tight riveting of Salbei containers. The welding seams of the aluminum tanks were not resistant enough against Salbei. Similar effects were observed on V2A steel containers. In order to eliminate these defects, small tightly riveted tanks, about 40 cm high and 30 cm in diameter, with riveted bottoms and one longitudinal seam were produced. One of the bottoms was provided with a flange and could be sealed with a lid. PeCe fabric with an Oppanol coating was used as packing material for the parts to be riveted. For experimental purposes, these tanks were filled with Salbei and stored under pressure. After a period of six months, the packing material started to disintegrate by swelling and crumbling. The next tanks were, therefore, riveted at a smaller spacing with the overlying inner edge slightly rimmed to protect the packing material. Some sort of duraluminum, 2 mm thick, coated with a layer of 2/10 mm pure aluminum proved to be the best suited material for these tanks. No satisfactory results were obtained in vibration tests. The leakages, however, were so low that these type of fuel tanks were still considered for operations. The same riveting system was allegedly also applied for the P-150 tanks. After Dr. Daniel (fnu) was repatriated these activities were discontinued.

g. C-Stoff analyses were made to determine the following contents.

(1) The hydrazine hydrate content was determined by using iodinepotassium iodine solution (sic).

(2) The methanol content was determined from the specific gravity obtained in a pyknometer. A diagram was prepared giving the pyknometric measurements in relation to the content of hydracine hydrate and the content of methanol. (Screening analyses)

(3) The content of water was determined as a difference by computation.

(4) The copper content was determined in the residues after evaporating C-Stoff according to a usual system.

(5) Hydrocyanic acid was acidified with sulphuric acid and overdistilled, and the content in the distillate determined titrimetrically with silver nitrate solution.

h. T-Stoff analyses.

The content of H_2O_2 was determined according to the methods usually applied by titration with potassium permanganate. In about early 1950, when Soviet produced-T-Stoff was received, the Department of Chemistry was also given pertaining analyzing methods. From Russian translations of American literature on German T-Stoff, it was learned that the Soviet T-Stoff was equal in quality to the German product used for submarines. The analyses were made to determine the following:

H_2O_2 content

Total phosphate content

The impurity content (by filtration)

The reaction to a 24-hour heating to 90 centigrades in a special apparatus, to test storage possibilities. The loss of H_2O_2 was not to exceed 3 percent.

i. Physical-chemical calculations on rocket fuels. These calculations, made by individual members of the group, were required as basis records for work in the field of rocket fuels. The activities included thermodynamic calculations of rocket fuels handled by Dr. Dunken (fnu); calculations of combustion chamber temperatures, calculations of the thrust obtained by various compositions of C-Stoff, the percentage of methanol and water, the ratio of these two components, T-Stoff and water, Petroleum and Salbei and Petroleum and T-Stoff.

process the Sodium soaps dissolved in the petroleum and deposited as a gelé after cooling down to a temperature of less than 50° centigrade. This gelé when passed through a fine wire mesh gave the petroleum thixotropic properties. An addition of 0.3 to 0.5 percent sebacic salts proved to be sufficient. According to the above mentioned priniple, a production process involving the production of sebacic salts of fatty acids dissolved in petroleum proved to be very advantageous. This was effected automatically at a temperature of 160 centigrades by adding sodium hydroxide dissolved in methanol. The methanol was distilled during this process. In addition to the usual viscometric methods to measure thixotropy, another system was applied which involved a special measuring instrument built of captured material. The thixotrope petroleum to be measured was filled into a small container which was rotated by a small engine. The thixotropic petroleum moved a plate suspended from a torsion wire to an angular deflection, until the viscosity of the gelé was overcome by the power of the torsion wire. The plate came to a rest while the container continued to rotate. The constant angle of deviation indicated the thixotropy. Another system involved a neutral powder such as calcium carbonate or fine grain sand evenly mixed into the thixotropic petroleum. Time and quantity of the settling powder indicated the thixotropy.

e. Production of an A-type fuel of sodium powder and petroleum.

The petroleum was absorbed and the powder was carefully mixed with thixotropic petroleum, from the petroleum suspended sodium powder mentioned in paragraph 6 c above. The small ball shaped sodium particles were not to be flattened so their diameter remained unchanged. An about 25 to 30 percent suspension of sodium in petroleum, designated PENA, was obtained in this process. A-Type fuel was obtained by diluting PENA with thixotropic petroleum until the sodium content was finally reduced to 3 percent. The thixotropy of the petroleum prevented the sodium from settling. Even under a comparatively low pressure, this type of fuel could be fed like a liquid, since, by increasing the pressure, the high viscosity which this material had at a state of rest was reduced approximately to the low viscosity of petroleum. The sodium content caused the A-Type fuel to react with Salbei by ignition. No water could contact fuel, however.

f. Production of a dynamic measuring instrument for ignition delays and experiments with the unit. No standard measuring instruments for ignition delays could be used, since Salbei and A-Type fuel could not be mixed like C-Stoff and T-Stoff, and especially because of the thixotropy of A-Type fuel. Therefore, a so-called dynamic ignition delay meter was built. The unit included two pressure containers of about 10-liter capacity into which the two components were filled. A constant pressure for these containers, about 10 atmospheres, was effected by nitrogen. After the valves were opened, each fuel escaped through a nozzle and ignited when they met in the air. The angular position of the two nozzles to each other could be adjusted. Salbei was fed first, then the valve of the A-Type fuel was opened. The increase of pressure in the A-Type fuel line was measured by a V2A diaphragm and an induction coil. The ignition point was measured by a photoelectric cell. The figures were evaluated similarly to those obtained by a standard ignition delay meter. The unit operated perfectly and was checked by a commission of the Ministry of Aviation which seemed to be very impressed. It was unknown whether the Soviets continued experiments in this field or not.

g. Production of a fuel from thixotrope petroleum with xanthogenate admixtures which reacted automatically to T-Stoff. Simultaneously, the Type A fuel, a dual with an automatic reaction to T-Stoff was made from petroleum. Sodium or potassium xanthogenates were produced according to the usual system. These two xanthogenates proved to be better suited for the purpose than others which had hygroscopic properties. Xanthogenate [illegible] a specific size were sifted and suspended in [illegible] petroleum which inflamed automatically with T-Stoff. [illegible] calculations revealed that a petroleum and T-Stoff mixture as a [illegible] of 1 to 8 was required. This, however, made the actual use of this fuel improbable, at least for the near future.

h. Basic experiments for the production of boranes (sic). In a conference with representatives of the Ministry of Aviation, it was decided that the production of boranes be initiated. Due to their chemical properties and their low [illegible], boranes seemed to be well qualified for use for [illegible] fuel. It was planned that equipment be built for the production of several kilos of boranes which were to be tested regarding their most important properties. This plan included the following details:

(1) The production of magnesium borid (sic) to obtain boranes according to the Stock method.

(2) The production of boro bromide to obtain boranes by silent electric discharge according to the Schlesinger system.

(3) The production of boranes of boro bromide by catalytic hydration. For the preliminary experiments to be conducted to determine the optimum catalyzer mixture, carbon tetrachloride was to be used as "Bodellsubstanz"(sic).

(4) Conversion of alkali hydrides to boranes with the help of boro bromide.

Except for the borane production of boro bromide by catalytic hydration, these activities never passed the stage of preliminary experiments. During these experiments a conversion of boro bromide was achieved with lithium or potassium hydride. However, unlike the results of American experiments published at a later date, potassium boron hydrides were obtained instead of borane. No further evaluations of these experiments were made, since the work of the Department of Chemistry came to an end in May 1950. The planned work order of the Ministry was cancelled because of the expected repatriation of the German experts. [1]

Miscellaneous Activities.

7. Development work for the testing of powder ingredients for tetra fire extinguishers.

Dipl Ing Boris von Schlippe's department developed a fire extinguisher for aircraft. Tetra (sic) was pressed to the fire by a burning powder charge. Dr Daniel (fnu) and Soviet experts developed this cylindrical powder charge of gelatinized nitro cellulose. A black powder train attached to the end of the charge was ignited electrically by means of a resistance coil. The weight of the powder charge was about 500 grams. Powder charge and tetra were separated by a cardboard diaphragm impregnated with a glycerin/glue mixture functioning as packing material. After the ignition had started, the diaphragm was torn by the explosion pressure. Tested in regard to their diffusion resistance against tetra, these diaphragms proved to be qualified. The combustion residues, however, settled in the tetra lines of the extinguisher and might have caused corrosion. No further information was obtained. [2]

8. Hard gold plating of potentiometers.

Dr Wahde's department produced potentiometers for measuring purposes. Since the resistance of the contacts was effected by the slight corrosion at the soldered parts, the points of contact were gold plated. Paraffin was put over the potentiometer leaving out the contact areas which were then gold plated by galvanization. During the same process, a chromium plating (hard gold plating) was effected by inducing short impulses of higher voltage at certain intervals. This type of surface protection was satisfactory. The potentiometers were used to indicate changes of the mechanical characteristics.

Flight Tests.

9. During 1948 and 1949, flight tests were conducted with the glider model of the DFS-346 at [illegible] airfield. Dipl Ing Hans Motsch who twice piloted the plane was afterwards no longer allowed to fly because he wore glasses. In early or mid 1950, powered flight tests were made at Lukovice airfield

which was still under construction at that time. Dr Burmeister who visited Lukovice in June 1950 stated that various hangars were being built. No details were obtained. Improvised equipment for the powered flight tests, including semi-underground tanks and containers, were built by Horst Kniestaedt. No special equipment for the take off of rocket powered aircraft was available. The DFS-346 was suspended from the left wing of a Tu-4. No information was obtained on the type of suspension and the release of the parasite. The flight tests ended on 12 September 1950 when the model was destroyed in a crash. Unless gliding tests with smaller models were planned, it seems improbable that the flight tests with DFS-346 were continued.

Activities at OKB II.

10. The activities of the Department of Chemistry did not permit any conclusions as to the development of a new type of rocket power unit at OKB II. No information was obtained on the existence of the DFS-468. It was pointed out that no powered test flights were made after 12 September 1950. At Podberezye, OKB II was often referred to as "Utopia" because only theoretical work was done there. During the period from 1947 to 1950, Ing Roessing (fnu) repeatedly complained about the slow progress in the development of the DFS-346. Is was assumed that these activities were slowed down by the Soviets who were working on a parallel development. One night, Roessing caught Beretsnyak (fnu), his Soviet deputy, copying the construction drawings. He concluded that this was done continuously. Burmeister believed that various projects were theoretically developed at OKB II to be forwarded to the Air Force Ministry where they were checked or possibly evaluated. No information was obtained on the construction of any new type of aircraft. Gliding tests were conducted with various small aircraft models including a delta wing plane. No details were remembered.

Designing of a Light Low-Attack Aircraft.

25X1

11. During 1948 and 1949, Dr Burmeister and Dipl Ing Boris von Schlippe worked on fuels with a lower boiling point to be used for the Schmidt type pulse jet. They also tried to reduce the boiling point of the fuels already available. Schlippe was working simultaneously on the improvement of the Schmidt type pulse jet engine. No details were obtained. In about the Summer of 1950, von Schlippe stated that an aircraft powered by improved version of pulse jet units was being built at Experimental Plant No 1. In the restricted area of the plant to which the German experts had no access, Burmeister observed, that a light low-attack aircraft powered by two Schmidt type pulse jet engines was being built. The aircraft were usually covered with tarpaulins before being shipped away at night.
3

12. Two of these aircraft were seen without a cover at a distance of about 30 meters. From the contours, it was determined that these two aircraft were definitely of the same type as the ones covered with tarpaulins which had been previously observed at a distance between 50 and 200 meters. These all-metal low-wing monoplanes had trapezoidal wings, a fuselage similar to that of Yak-type aircraft and amdskid instead of landing gear. The two power units were mounted on the fuselage aft of the cabin in line with the wings. No other engine assemblies were observed. German experts stated that, between the Summer of 1950 and the Summer of 1951, Experimental Plant No 1 in Podberezhye had produced a series of 300 to 500 such aircraft which, however, had not been developed there. It is assumed that these 300 to 500 aircraft were only parts of a series, and that the production of these aircraft was assigned to Experimental Plant No 1 to utilize its capacity. The Siebel and Junkers engineers who had been working in the assembly shop stated that, at the time this production started, the portion with the assembly line had not been entirely separated, and that the assembly line gave indications of the production of this type of aircraft. This aircraft had the following advantages: It would land at improvised airfields, could quickly be loaded on two standard trucks, and its maintenance did not require well-trained personnel. The process by which the aircraft became airborne was unknown. No catapulting or similar equipment was observed. The aircraft was never seen in flight.

1. Comment. This was confirmed by previous information. 25X1

2. Comment. For a chart of activities at the Department of Chemistry at Experimental Plant No 1 in Podberezhye, see Annex 1. For a list of personnel, see Annex 5.

3. Comment. For sketches of the twin-engine pulse jet aircraft, see Annex 2. During the last year of the war, the Germans had developed the EF-126 (cover designation Lili), a low-attack aircraft powered with one pulse jet unit carried over the fuselage. Three EF-126 models were shipped to Podberezhye. The project was allegedly cancelled after a fatal accident. Except for the two power units, the arrangement of which is very probable, the reported aircraft has a striking resemblance to the EF-126 and is, therefore, probably a further development of the latter type. When being reinterrogated, source stated that the aircraft observed had definitely been equipped with a cabin. This excluded the possibility that an experimental series of V-1s was concerned. According to previous information, such an experimental series of 25 V-1s had been built at Podberezhye between the Fall of 1949 and the Summer of 1950. 25X1

CONFIDENTIAL [redacted] 25X1

Annex 3 [redacted]

Personal Data of the German Experts of the Department of Chemistry

1. Hubert Emrich, [redacted] established the Department and was chief until April 1949 when he was transfered to the material laboratory of OKB II. [redacted] 25X1 25X1 25X1

2. Dr. Heinz Dunken, [redacted] expert in physical chemistry, was a private lecturer and assistant of Professor Wolf at the Halle University until 1945. [redacted] 25X1 25X1

3. Dr Hans Janke, [redacted] physicist. Prior to 1944, Dr. Janke worked in Niederoderwitz for the Osram Plant [redacted] 25X1 25X1 25X1

CONFIDENTIAL [redacted] 25X1 25X1

[redacted] 25X1

Annex 3 [redacted]

25X1

[redacted]

4. Dipl Chem Karl Steffen, [redacted] expert for physical chemistry, was an assistant of Professor Wagner at the Darmstadt Institute of Technology until 1945, [redacted] 25X1

25X1 25X1

5. Dr Willi Burmeister, chemist, [redacted] had worked for the German caoutchouc industry until 1945. He invented the bullet proof fuel tank. [redacted] 25X1

6. Dr. Walter Hahn, laboratory chemist, [redacted] 25X1 25X1

25X1

[redacted] 25X1 25X1

[redacted] 25X1

7. **Dr. Willi Daniel,** [redacted] chemist, came to Podberezye together with Dr Hahn and was repatriated with the latter. [redacted] 25X1 25X1

8. **Karl Rudat,** chemist, [redacted] Prior to 1945 he had worked at the Chemisch Technische Reichsanstalt 25X1 In 1946, [redacted] 25X1 25X1

9. **Horst Kniestaedt,** chemist, [redacted] 25X1 25X1

10. **Gerhard Keil,** [redacted] was hired by the Halle Labor Office for laboratory work at OKB II in early 1946, [redacted] 25X1

11. **Gerhard Tybus,** [redacted] chief mechanic, [redacted] 25X1 25X1

25X1 25X1 25X1

12. Dr Alban Ruppelt, chemist, had worked for the Brandenburg Arado Plant on material problems until 1955. [redacted] 25X1
[redacted] 25X1

13. Engineer Viktor Lagutin, Soviet [redacted] 25X1
[redacted] 25X1

Annex 1

Activities of the Department of Chemistry at Experimental Plant No. 1 in Podberezhe.

	46	1947	1948	1949	1950	1951	1952	
		Summer	Early 1948 / Late Fall	April	Summer			
		Emrich		Dr, Dunken				
Emrich		Supervising work		work for OKB II				1)
Dr. Dunken		5 i		organizational work	+ 4	4 + 5	[redacted]	2)
Dr. Janke		5 a	5 d	6 f	6 h	?	[redacted]	
Dipl.Chem.Steffes		5 a	?	6 e		?		2)
Dr.Burmeister		5 b	5 e + 6 a	5 f + 6 d	4 + 6 h	5 g + 5 h		3)
Dr.Hahn		5 i	[illegible] + ?		5 k + 6 h			1)
Dr. Daniel		?	6 a	[illegible] e + 5 f + 4 a	6 h			1)
Rudat		4		4				3)
Kniestädt		assembling work	4		6 h	5 g + 5 h		3)
Keil		5 e	[illegible]	6 d				1)
Tybus		assembling work	?	[illegible] e + 6 e	5 e + 6 h	5 e		3)
Dr. Ruppelt		4	sicknes					4)

The numbers refer to the paragraphs of the report.

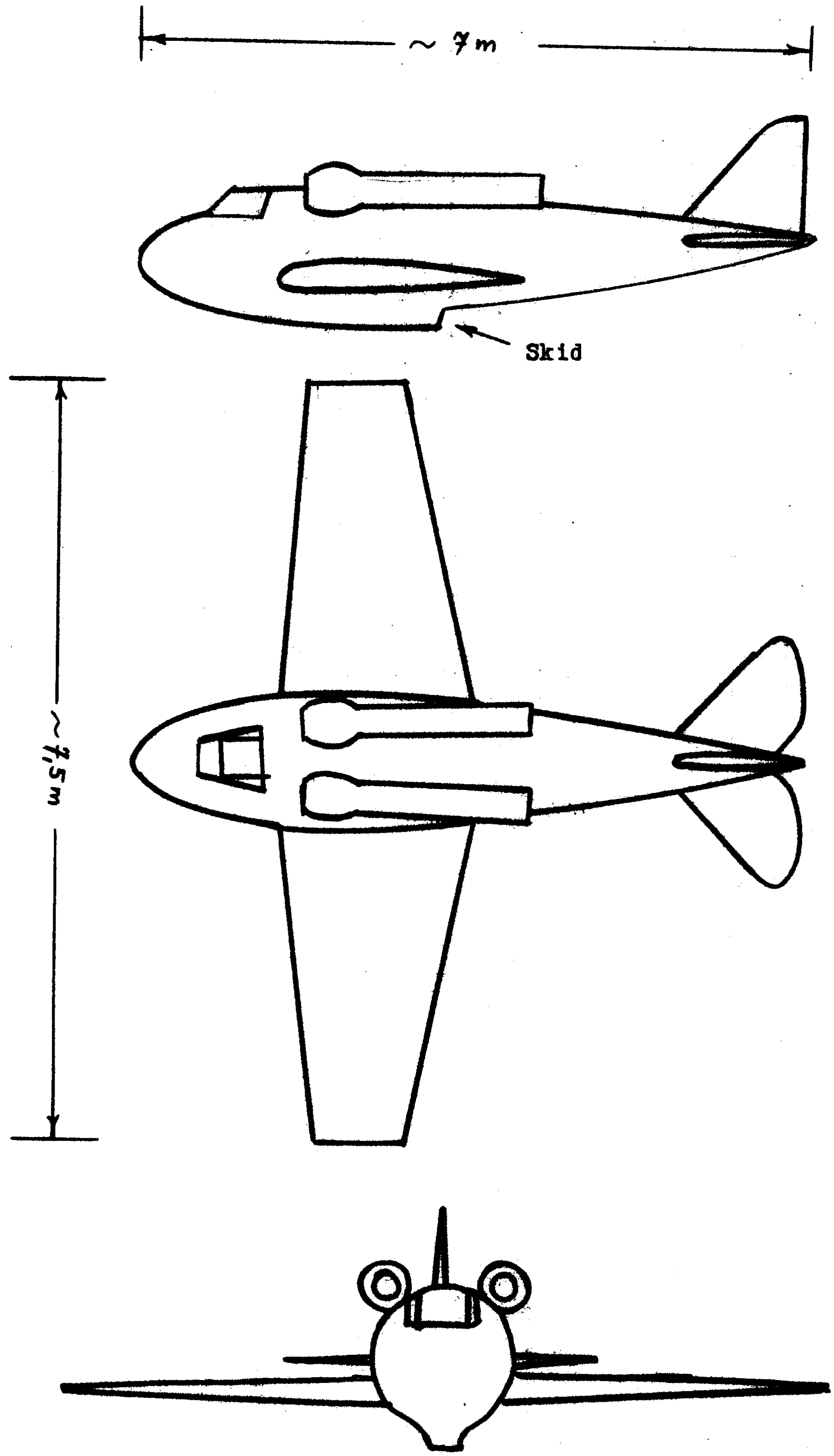
1) Repatriation to East Germany
2) He left the plant but was not repatriated before 1954
3) He left the plant to be repatriated several weeks later.
4) He died in the USSR

CONFIDENTIAL [redacted] 25X1

[redacted] **Annex 2** [redacted] 25X1

25X1

<u>Twin-Engine Pulse Jet Aircraft Seen at Experimental Plant No. 1 in Podberezhe.</u>



CONFIDENTIAL [redacted] 25X1

[redacted] 25X1

ILLEGIB

Page Denied

25X1

CLASSIFICATION CONFIDENTIAL

COUNTRY USSR REPORT

SUBJECT The Chemistry Department and the Construction of Twin Pulsejet Fighter at Experimental Plant No 1 in Podberezye

25X1

EVALUATION PLACE OBTAINED

DATE OF CONT 25X1

DATE OBTAINED 12 January 1955

REFERENCES 25X1

PAGES 11 ENCLOSURES (NO. & TYPE) 3 - sketch on ditto, list on ditto, chart on ditto

REMARKS 25X1

This is UNEVALUATED Information

The Chemical Department of Experimental Plant No 1

25X1

1. After the war, OKB II resumed operation under the control of Soviet Colonel Vlassov (fnu) with Ing Roessing (fnu) as chief designer. The Soviets requested that a chemistry department for experiments with rocket fuels be attached. Hubert Emrich was delegated to establish the department. He merely pretended to be an expert in the field of rocket fuels by showing to the Soviets original documents of the BMW Plant bearing his signature as a department chief. Subsequently it was learned that Emrich had signed these documents after the fact instead of the actual department chief, Borovski (fnu) (phonetic spelling). In order not to be exposed as a swindler, Emrich consequently planned not to hire any fuel specialists for the department. Before the German experts were deported from Halle to the USSR, they did no practical work but tried to familiarize themselves with this new field. Actual research work was started after their deportation to the USSR. Primarily the Halle Labor Office had been in charge of hiring personnel for the Chemical Group. [1]

2. In Halle, Emrich and Roessing were assigned to Colonel Vlassov. But Roessing prepared the workorders for the Chemical Department. This arrangement was suggested by Emrich who feared exposure if he were subordinated to Roessing directly.
When Colonel Vlassov returned to the USSR, he said he preferred work at the Ministry of Aviation to a director's position at an aircraft plant. He explained to some German experts that the first director of a new plant had a dangerous position, because the circumstances would make it impossible to fulfill the production quota and he would soon be transferred, possibly to a convict camp, and be charged with sabotage. The second director would not be much better off, and only the fourth or fifth director would be comparatively safe, because, by then, the difficulties would have been eliminated. After his arrival in Podberezye, Emrich wanted to be assigned with his department to the Ministry of Chemistry,

CLASSIFICATION CONFIDENTIAL

25X1

this Ministry , however, decided that the department had been established on request of the Ministry of Aviation which, therefore, would also be responsible of it. During their time at Podberez'e, the chemical group was controlled by OKB II.

3. No work pattern or program was used for the activities of the Department of Chemistry. The slow work procedure of OKB II and the lack of the required laboratory equipment made it necessary for the individual work orders to be decided upon according to the circumstances. The entire laboratory equipment, even laboratory tables and improvised test stands, had to be produced partly of make-shift material. Assistance from the Ministry of Chemistry was not obtained. Most of the personnel had still to familiarize themselves with the field of rocket fuels, and to prepare the basic records which were lacking. Due to these handicaps, no result were probably obtained to exceed those obtained by related German expert groups during the war. The activities included the following:

Advisory work in the field of materials for both OKB I and II

Work on the DFS-346 rocket aircraft

Development work in the field of rocket fuels

Miscellaneous activities

4. Advisory work in the field of material problems included the analyses of materials used by both OKBs and the change-over from German materials to Soviet products. The analyses of steel, light metal, oil, gasoline, lubricants and varnishes followed the instructions and specifications given by Soviet manuals for aviation materials. These specifications were so detailed and foolproof that even inadequate personnel was able to make correct analyses. No details were available on the material analysed.

5. Work for the DFS-346 included 10 projects:

a. Project for the establishment of a research institute for rocket fuels to include a laboratory, a technical institute and storage facilities. The laboratory building was to house sections for inorganic analyses, for organic preparations, electrical chemistry, physics and physical chemistry and for spectral analyses. A test stand fitted with a small combustion chamber, and equipment for the measurement of ignition delays was also planned. The project also included a small rubber laboratory and equipment for experiments with powder charges. The main technical institute was to be provided for the production of organic substances in quantities up to 2.. kg. Among other equipment, a distillation column 10 meters high, was to be installed. Storage facilities were to be constructed for "Salbei" (code for an oxidizing agent consisting of concentrated nitric acid) "T-Stoff" and similar agents. The project covered details such as laboratory tables, funnels, etc. and was primarily designed to suit the members of the Department of Chemistry. The plan, however, was never carried out and improvised equipment was installed in the available buildings.

b. Production specifications for rubber mixtures on a Lupolen and Oppanol basis (Lupolen - code for a type of sealing material used on fuel lines) Oppanol - a synthetic material equivalent to Vestanex, composed of isobutylene and isoprene), to resist T-Stoff and Salbei, and specifications for single parts, such as socket hoses and swivel hoses for fuel, especially for T-Stoff. These specifications were prepared for the production of vulcanized Buna S blends (synthetic rubber) with Lupolen admixtures and especially for the production of Oppanol and Lupolen. Lupolen -Oppanol mixture at a ratio of 50 to 50 and 30 to 70 was to be used as packing agent. A 15 to 85 mixture was recommended for the production of hoses. PeCe fabric (a type of highly acid resistant nylon- like fabric of low melting point produced by I.G. Farben) with a coating of Oppanol sulution was used as material for the hoses. The inner and outer coil of the fuel hoses were to be made of pure aluminum or V2A type steel. The fuel lines to tap the tanks (swivel hoses), however, were to be made only of one layer of Pe Ce fabric coated with Oppanol solution. In 1948 and 1949, Soviet firms produced seals and hoses according to these specifications. These products proved to be sufficiently resistant against T-Stoff and C-Stoff, as well as against Salbei. After 1949, the Soviet material was equal in quality to the captured German material.

c. Stabilization of C-Stoff. C-Stoff containing about 50 percent of hydracine hydrate, 37 percent methanol and 3 percent of a 10 percent aqueous solution of potassium copper cyanuer, dissociated when stored. Since none of the chemists was experienced with C-stoff, the type of dissociation had first to be analyzed in order to find a preventive agent. It was found that the dissociation was a result of an oxydizing process of the hydrazine hydrate which in turn was effected by oxygen and catalytically forced by the content of calium copper cyanuer because the latter addition did not contain the theoretically required amount of cyanogen. The defect was eliminated by sealing the C-Stoff against air by covering it with a layer of transformer oil and by adding 0.05 to 0.1 percent of hydroquinone which sufficiently eliminated the catalytical oxydation without increasing the ignition delay. The maximum ignition delay for C-Stoff and T-Stoff mixtures was 25 milli seconds. In addition to the above mentioned mixtures, others containing more methanol or water were used to reduce the temperatures in the combustion chamber.

d. Experiments with a static measuring instrument for ignition delays. In cooperation with Dr. Tehde's department, the Chemical Group developed a measuring instrument for ignition delays to test rocket fuels. One component was dripped into the other and the time passed between the impingement of the drop and the inflammation was measured in milli seconds. One agent, for example C-Stoff, was placed in a small crucible with a capacity of about 2 cm^3 made of V2A steel or porcelain, and small drops of T-Stoff were added by means of a small pipette. The impingement on the liquid surface produced an impulse which caused a condenser to discharge. As soon as the reaction of both components occured, the flame produced stopped the discharge by means of a photoelectric cell. The remaining tension of the condenser indicated the delay in milli seconds on a calibrated scale.

e. Development of a cabin heater operating without exhaust gases.
The designers believed that, because of the low temperatures at the high altitudes reached by the DFS-346, the cabin should be heated. It was planned that the heat be produced by burning pressed tablets of an aluminum-magnesium powder in an oxygen flow. The stove, an iron tube, about 60 cm long and 10 cm in diameter, was fitted with ribs and with an iron rod. The latter extended over the length of the tube and was to hold the tablets which were provided with a hole for this purpose. Aluminum and magnesium powder at a mixture ratio of 2 to 1 was mixed with diluted water glass. This paste was pressed into tablets and burned in a kiln at a temperature of approximately 100° centigrade. Ignition was effected by the first tablet on the rod which was made of a thermite substance with a cast-in ignition coil which, being fed from the aircraft battery, started to glow and ignited the thermite. By feeding oxygen into the tube, the other tablets started to burn. The heat was controlled by the oxygen flow. A blast unit was to blow cold air to the stove. Heated air would flow back to the cabin at a temperature of 50 centigrades. The burning period of the stove was one hour. After small technical difficulties were eliminated the stove operated satisfactorily, but it was never installed in the DFS-346, since friction of the air occuring at high speeds actually produced enough heat for the cabin.

f. Experiments for tight riveting of Salbei containers. The welded seams of the aluminum tanks were not resistant enough against Salbei. Similar effects were observed on V2A steel containers. In order to eliminate these defects, small tightly riveted tanks, about 40 cm high and 30 cm in diameter, with riveted bottoms and one longitudinal seam were produced. One of the bottoms was provided with a flange and could be sealed with a lid. PeCe fabric with an Oppanol coating was used as packing material for the parts to be riveted. For experimental purposes, these tanks were filled with Salbei and stored under pressure. After a period of six months, the packing material started to disintegrate by swelling and crumbling. The next tanks were, therefore, riveted at a smaller spacing with the overlying inner edge slightly rimmed to protect the packing material. Some sort of duraluminum, 2 mm thick, coated with a layer of 2/10 mm pure aluminum proved to be the best suited material for these tanks. No satisfactory results were obtained in vibration tests. The leakages, however, were so low that these type of fuel tanks were still considered for operations. The same riveting system was allegedly also applied for the P-150 tanks. After Dr. Daniel (fnu) was repatriated these activities were discontinued.

g. C-Stoff analyses were made to determine the following contents.

(1) The hydrazine hydrate content was determined by using iodinepotassium iodine solution (sic).

(2) The methanol content was determined from the specific gravity obtained in a pyknometer. A diagram was prepared giving the pyknometric measurements in relation to the content of hydracine hydrate and the content of methanol. (Screening analyses)

(3) The content of water was determined as a difference by computation.

(4) The copper content was determined in the residues after evaporating C-Stoff according to a usual system.

(5) Hydrocyanic acid was acidified with sulphuric acid and overdistilled, and the content in the distillate determined titrimetrically with silver nitrate solution.

h. T-Stoff analyses.

The content of H_2O_2 was determined according to the methods usually applied by titration with potassium permanganate. In about early 1950, when Soviet produced-T-Stoff was received, the Department of Chemistry was also given pertaining analyzing methods. From Russian translations of American literature on German T-Stoff, it was learned that the Soviet T-Stoff was equal in quality to the German product used for submarines. The analyses were made to determine the following:

H_2O_2 content

Total phosphate content

The impurity content (by filtration)

The reaction to a 24-hour heating to 90 centigrades in a special apparatus, to test storage possibilities. The loss of H_2O_2 was not to exceed 3 percent.

i. Physical-chemical calculations on rocket fuels. These calculations, made by individual members of the group, were required as basis records for work in the field of rocket fuels. The activities included thermodynamic calculations of rocket fuels handled by Dr. Dunken (fnu); calculations of combustion chamber temperatures, calculations of the thrust obtained by various compositions of C-Stoff, the percentage of methanol and water, the ratio of these two components, T-Stoff and water, Petroleum and Salbei and Petroleum and T-Stoff.

CONFIDENTIAL

25X1

k. Production of disintegrating stones (catalyzer) for T-Stoff.

With the help of the basic material available, Dr. Hahn (fnu) produced disintegrating stones of cement and chromic acid salts. Simultaneously experiments were conducted in burning the methanol added to the T-Stoff. This was done by using the oxygen becoming nascent during the disintegration of the T-Stoff. The chromium catalyzer was slightly improved by adding other metallic salts such as manganese and cobalt. The vapor temperature was to be increased by adding methanol.

Development of Rocket Fuels.

6. These activities included eight projects:

a. Experiments conducted to effect a dispersion of amines in petroleum. Since amines have an explosive reaction to Salbei, a suspension of p-phenylene diamine, phenylhydracine or anilin in petroleum, in order to effect this reaction of petroleum with Salbei was attempted. Although the required reactivity was obtained, it was impossible to produce a stable suspension, because the solubility depended on the temperature.

b. Experiments with additive compounds of amines and phenols. Amines, such as monomethylamine, dimethylamine and trimethylamine, added to phenols produce liquid additive compounds with ignite as a reaction to Salbei. At temperatures of about 15° centigrade below zero, however, these compounds become viscous or solid. No improvements were obtained by adding methanol. Because these additive compounds lost amine by evaporation at higher storage temperatures, and because of shortages (phenols), a fuel based on this system was found to be inadequate. The amines were partly produced in the laboratory and partly taken from captured German stocks.

c. Production of sodium powder.
Special equipment was built for this purpose. The sodium was melted in a vertical pressurized cylinder which was heated in an oil bath to 100° centigrade. The melted sodium was fed by oil pressure upward and injected through a special nozzle into a flow of cold petroleum in which the sodium accumulated in small grains. The petroleum was passed through a filter to strain the coarse particles. The average diameter of the ball-shaped sodium grains was 0.05 mm, their maximum permissable diameter being 0.12 mm. During one process, about 5 kg of sodium were used. The sodium was received in tinned sheet metal cans, most probably from Soviet plants. The surface was sealed with a layer of melted paraffin.

d. The production of a type of petroleum with thixotropic properties, and the development of methods for the measurement of thixotropy. The production of thixotropic petroleum was based on the use of sebacic salts (soaps). Sodium oleate and stearate mixed with small quantities of stearic acid were [illegible] with petroleum to about 150 centigrade. During this

CONFIDENTIAL

25X1

process the Sodium soaps dissolved in the petroleum and deposited as a gelé after cooling down to a temperature of less than 50° centigrade. This gele when passed through a fine wire mesh gave the petroleum thixotropic properties. An addition of 0.3 to 0.5 percent sebacic salts proved to be sufficient. According to the above mentioned priciple, a production process involving the production of sebacic salts of fatty acids dissolved in petroleum proved to be very advantageous. This was effected automatically at a temperature of 160 centigrades by adding sodium hydroxide dissolved in methanol. The methanol was distilled during this process. In addition to the usual viscometric methods to measure thixotropy, another system was applied which involved a special measuring instrument built of captured material. The thixotrope petroleum to be measured was filled into a small container which was rotated by a small engine. The thixotropic petroleum moved a plate suspended from a torsion wire to an angular deflection, until the viscosity of the gele was overcome by the power of the torsion wire. The plate came to a rest while the container continued to rotate. The constant angle of deviation indicated the thixotropy. Another system involved a neutral powder such as calcium carbonate or fine grain sand evenly mixed into the thixotropic petroleum. Time and quantity of the settling powder indicated the thixotropy.

e. Production of an A-type fuel of sodium powder and petroleum.

The petroleum was absorbed and the powder was carefully mixed with thixotropic petroleum, from the petroleum suspended sodium powder mentioned in paragraph 6 c above. The small ball shaped sodium particles were not to be flattened so their diameter remained unchanged. An about 25 to 30 percent suspension of sodium in petroleum, designated PENA, was obtained in this process. A-Type fuel was obtained by diluting PENA with thixotropic petroleum until the sodium content was finally reduced to 3 percent. The thixotropy of the petroleum prevented the sodium from settling. Even under a comparatively low pressure, this type of fuel could be fed like a liquid, since, by increasing the pressure, the high viscosity which this material had at a state of rest was reduced approximately to the low viscosity of petroleum. The sodium content caused the A-Type fuel to react with Salbei by ignition. No water could contact fuel, however.

f. Production of a dynamic measuring instrument for ignition delays and experiments with the unit. No standard measuring instruments for ignition delays could be used, since Salbei and A-Type fuel could not be mixed like C-Stoff and T-Stoff, and especially because of the thixotropy of A-Type fuel. Therefore, a so-called dynamic ignition delay meter was built. The unit included two pressure containers of about 10-liter capacity into which the two components were filled. A constant pressure for these containers, about 10 atmospheres, was effected by nitrogen. After the valves were opened, each fuel escaped through a nozzle and ignited when they met in the air. The angular position of the two nozzles to each other could be adjusted. Salbei was fed first, then the valve of the A-Type fuel was opened. The increase of pressure in the A-Type fuel line was measured by a V2A diaphragm and an induction coil. The ignition point was measured by a photoelectric cell. The figures were evaluated similarly to those obtained by a standard ignition delay meter. The unit operated perfectly and was checked by a commission of the Ministry of Aviation which seemed to be very impressed. It was unknown whether the Soviets continued experiments in this field or not.

g. Production of a fuel from thixotrope petroleum with xanthogenate admixtures which reacted automatically to T-Stoff. Simultaneously, the Type A fuel, a dual with an automatic reaction to T-Stoff was made from petroleum. Sodium or potassium xanthogenates were produced according to the usual system. These two xanthogenates proved to be better suited for the purpose than others which had hygroscopic properties. Xanthogenate grains of a specific size were sifted and suspended in thixotropic petroleum which inflamed automatically with T-Stoff. Theoretical calculations revealed that a petroleum and T-Stoff mixture as a ratio of 1 to 8 was required. This, however, made the actual use of this fuel improbable, at least for the near future.

h. Basic experiments for the production of boranes (sic). In a conference with representatives of the Ministry of Aviation, it was decided that the production of boranes be initiated. Due to their chemical properties and their low molecular weight, boranes seemed to be well qualified for use for rocket fuel. It was planned that equipment be built for the production of several kilos of boranes which were to be tested regarding their most important properties. This plan included the following details:

(1) The production of magnesium borid (sic) to obtain boranes according to the Stock method.

(2) The production of boro bromide to obtain boranes by silent electric discharge according to the Schlesinger system.

(3) The production of boranes of boro bromide by catalytic hydration. For the preliminary experiments to be conducted to determine the optimum catalyzer mixture, carbon tetrachloride was to be used as "Bodellsubstanz"(sic).

(4) Conversion of alkali hydrides to boranes with the help of boro bromide.

Except for the borane production of boro bromide by catalytic hydration, these activities never passed the stage of preliminary experiments. During these experiments a conversion of boro bromide was achieved with lithium or potassium hydride. However, unlike the results of American experiments published at a later date, potassium borop hydrides were obtained instead of borane. No further evaluations of these experiments were made, since the work of the Department of Chemistry came to an end in May 1950. The planned work order of the Ministry was cancelled because of the expected repatriation of the German experts. [1]

Miscellaneous Activities.

7. Development work for the testing of powder ingredients for tetra fire extinguishers.

Dipl Ing Boris von Schlippe's department developed a fire extinguisher for aircraft. Tetra (sic) was pressed to the fire by a burning powder charge. Dr Daniel (fnu) and Soviet experts developed this cylindrical powder charge of gelatinized nitro cellulose. A black powder train attached to the end of the charge was ignited electrically by means of a resistance coil. The weight of the powder charge was about 500 grams. Powder charge and tetra were separated by a cardboard diaphragm impregnated with a glycerin/glue mixture functioning as packing material. After the ignition had started, the diaphragm was torn by the explosion pressure. Tested in regard to their diffusion resistance against tetra, these diaphragms proved to be qualified. The combustion residues, however, settled in the tetra lines of the extinguisher and might have caused corrosion. No further information was obtained. 2

8. Hard gold plating of potentiometers.

Dr Wehde's department produced potentiometers for measuring purposes. Since the resistance of the contacts was effected by the slight corrosion at the soldered parts, the points of contact were gold plated. Paraffin was put over the potentiometer leaving out the contact areas which were then gold plated by galvanization. During the same process, a chromium plating (hard gold plating) was effected by inducing short impulses of higher voltage at certain intervals. This type of surface protection was satisfactory. The potentiometers were used to indicate changes of the mechanical characteristics.

Flight Tests.

9. During 1948 and 1949, flight tests were conducted with the glider model of the DFS-346 at Teplyy Stan airfield. Dipl Ing Hans Motsch who twice piloted the plane was afterwards no longer allowed to fly because he wore glasses. In early or mid 1950, powered flight tests were made at Lukovice airfield

which was still under construction at that time. Dr Burmeister who visited Lukowice in June 1950 stated that various hangars were being built. No details were obtained. Improvised equipment for the powered flight tests, including semi-underground tanks and containers, as built by Horst Kniestaedt. No special equipment for the take off of rocket powered aircraft was available. The DFS-346 was suspended from the left wing of a Tu-4. No information was obtained on the type of suspension and the release of the parasite. The flight tests ended on 12 September 1950 when the model was destroyed in a crash. Unless gliding tests with smaller models were planned, it seems improbable that the flight tests with DFS-346 were continued.

Activities at OKB II.

10. The activities of the Department of Chemistry did not permit any conclusions as to the development of a new type of rocket power unit at OKB II. No information was obtained on the existence of the DFS-468. It was pointed out that no powered test flights were made after 12 September 1950. At Podberezye, OKB II was often referred to as "Utopia" because only theoretical work was done there. During the period from 1947 to 1950, Ing Roessing (fnu) repeatedly complained about the slow progress in the development of the DFS-346. Is was assumed that these activities were slowed down by the Soviets who were working on a parallel development. One night, Roessing caught Beretsnyak (fnu), his Soviet deputy, copying the construction drawings. He concluded that this was done continuously. Burmeister believed that various projects were theoretically developed at OKB II to be forwarded to the Air Force Ministry where they were checked or possibly evaluated. No information was obtained on the construction of any new type of aircraft. Gliding tests were conducted with various small aircraft models including a delta wing plane. No details were remembered.

Designing of a Light Low-Attack Aircraft.

25X1

11. During 1948 and 1949, Dr Burmeister and Dipl Ing Boris von Schlippe worked on fuels with a lower boiling point to be used for the Schmidt type pulse jet. They also tried to reduce the boiling point of the fuels already available. Schlippe was working simultaneously on the improvement of the Schmidt type pulse jet engine. No details were obtained. In about the Summer of 1950, von Schlippe stated that an aircraft powered by improved version of pulse jet units was being built at Experimental Plant No 1. In the restricted area of the plant to which the German experts had no access, Burmeister observed that a light low-attack aircraft powered by two Schmidt type pulse jet engines was being built. The aircraft were usually covered with tarpaulins before being shipped away at night. 3

12. Two of these aircraft were seen without a cover at a distance of about 30 meters. From the contours, it was determined that these two aircraft were definitely of the same type as the ones covered with tarpaulins which had been previously observed at a distance between 50 and 200 meters. These all-metal low-wing monoplanes had trapezoidal wings, a fuselage similar to that of Yak type aircraft and a skid instead of landing gear. The two power units were mounted on the fuselage aft of the cabin in line with the wings. No other engine assemblies were observed. German experts stated that, between the Summer of 1950 and the Summer of 1951, Experimental Plant No 1 in Podberezye had produced a series of 300 to 500 such aircraft which, however, had not been developed there. It is assumed that these 300 to 500 aircraft were only parts of a series, and that the production of these aircraft was assigned to Experimental Plant No 1 to utilize its capacity. The Siebel and Junkers engineers who had been working in the assembly shop stated that, at the time this production started, the portion with the assembly line had not been entirely separated, and that the assembly line gave indications of the production of this type of aircraft. This aircraft had the following advantages: It would land at improvised airfields, could quickly be loaded on two standard trucks, and its maintenance did not require well-trained personnel. The process by which the aircraft became airborne was unknown. No catapulting or similar equipment was observed. The aircraft was never seen in flight.

1. Comment. This was confirmed by previous information.

2. Comment. For a chart of activities at the Department of Chemistry at Experimental Plant No 1 in Podberezye, see Annex 1. For a list of personnel, see Annex 3. 25X1

3. Comment. For sketches of the twin-engine pulse jet aircraft, see Annex 2. During the last year of the war, the Germans had developed the EF-126 (cover designation Lili), a low-attack aircraft powered with one pulse jet unit carried over the fuselage. Three EF-126 models were shipped to Podberezye. The project was allegedly cancelled after a fatal accident. Except for the two power units, the arrangement of which is very probable, the reported aircraft has a striking resemblance to the EF-126 and is, therefore, probably a further development of the latter type. When being reinterrogated, source stated that the aircraft observed had definitely been equipped with a cabin. This excluded the possibility that an experimental series of V-1s was concerned. According to previous information, such an experimental series of 25 V-1s had been built at Podberezye between the Fall of 1949 and the Summer of 1950. 25X1

CONFIDENTIAL
[redacted]

Annex 3 [redacted] 25X1

25X1

Personal Data of the German Experts of the Department of Chemistry

1. Hubert Harich, [redacted] established the Department and was chief until April 1949 when he was transfered to the material laboratory of OKB II. [redacted] 25X1

25X1

25X1

2. Dr. Heinz Dunken, [redacted] expert in physical chemistry, was a private lecturer and assistant of Professor Wolf at the Halle University until 1945. [redacted] 25X1

25X1

3. Dr Hans Janke, [redacted] physicist. Prior to 1944, Dr. Janke worked in Niederoderwitz [redacted] 25X1

25X1

CONFIDENTIAL
[redacted] 25X1

25X1

CONFIDENTIAL

UN[redacted] Annex 3 [redacted] 25X1

25X1

[redacted]

4. Dipl Chem Karl Steffes [redacted] expert for physical chemistry, was an assistant of Professor Wagner at the Darmstadt Institute of Technology until 1945, 25X1

[redacted] 25X1

5. Dr Willi Burmeister, chemist, [redacted] and worked for the German caoutchouc industry until 1945. He invented the bullet proof fuel tank. [redacted] 25X1 25X1

[redacted]

6. Dr. Walter Hahn, laboratory chemist, [redacted]

[redacted] 25X1

25X1

25X1

CONFIDENTIAL

[redacted] 25X1

ILLEGIB

Page Denied

CONFIDENTIAL

[redacted] 25X1

Annex 3 [redacted] 25X1

12. Dr Alban Ruppelt, chemist, had worked for the Brandenburg Arado Plant on material problems until 1955. [redacted] 25X1 25X1

13. Engineer Viktor Lagutin, Soviet [redacted] 25X1 25X1

CONFIDENTIAL

[redacted] 25X1

Annex 1

Activities of the Department of Chemistry at Experimental Plant No. 1 in Podberezhe.

Years: 46 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952

Time marks: Summer (1947) | Early 1948 | Late Fall (1948) | April (1949) | Summer (1950)

Head of department: Emrich (to April 1949) | Dr. Dunken (from April 1949)

Emr[redacted]h	Supervising work / work for OKB II 1)
Dr. [redacted]nken	5 i / organizational work + 4 / 4 + 5 d + 8 2)
Dr. [redacted]anke	5 a / 5 d / 6 f / 6 h / ? 2)
Dipl.Chem.Steffes	5 a / ? / 6 e / ? 2)
Dr. [redacted]rmeister	5 b / 5 c + 6 a / 5 f + 6 d / 4 + 6 h / 5 g + 5 h 2)
Dr. [redacted]hn	5 i / 4 + 7 / 5 k + 6 h 1)
[redacted]aniel	? / 6 a / 5 e + 5 f + 4 a / 6 h 1)
Rud[redacted]	4 / 4 2)
Kni[redacted]tädt	assembling work / 4 / 6 h / 5 g + 5 h 2)
Keil	5 a / 6 a / 6 b / 6 d 1)
Tyb[redacted]	assembling work / ? / 6 c + 6 e / 5 e + 6 h / 5 e 2)
Dr. [redacted]uppelt	4 / sicknes 4)

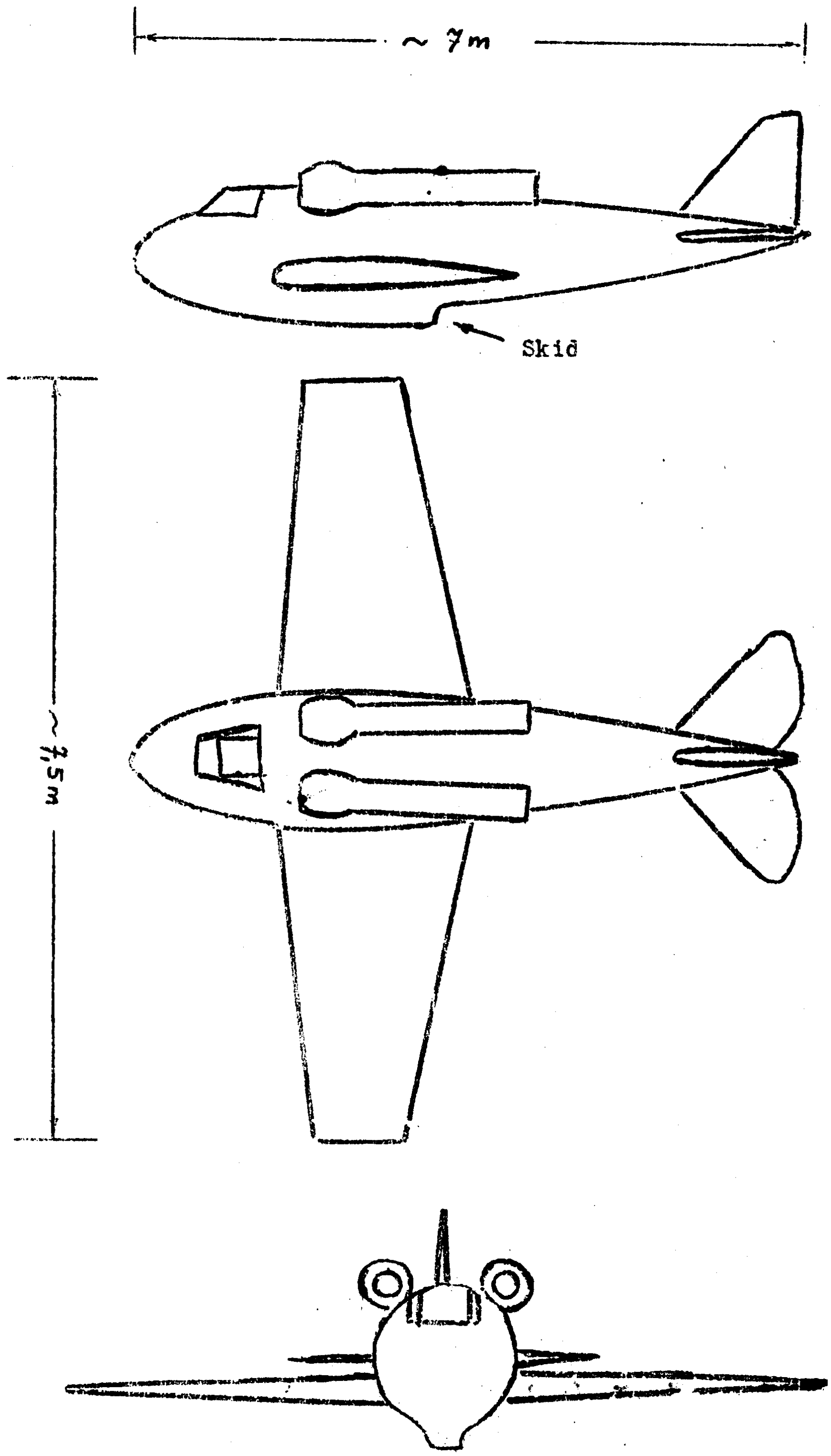
The numbers refer to the paragraphs of the report.

1) Repatriation to East Germany
2) He left the plant but was not repatriated before 1954
3) He left the plant to be repatriated several weeks later.
4) He died in the USSR

CONFIDENTIAL

..nex 2 25X1
25X1

Twin-Engine Pulse Jet Aircraft Seen at Experimental Plant No. 1 in Podberezhe.



CONFIDENTIAL

25X1